Curriculum Vitae of Rohil Ray Prasad

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EDUCATION

Harvard College September 2014 - May 2018
A.B./A.M. Candidate in Mathematics, Computer Science Secondary
GPA: 3.897/4.0 (In Major/Minor: 3.947/4.0)

Lexington High School September 2010 - May 2014

RESEARCH EXPERIENCE

University of Minnesota Twin Cities REU June 2016 - August 2016
Minneapolis, MN

- Researched the Grothendieck and dual Grothendieck polynomials of ribbons under Dr. Rebecca Patrias. Led to publication in *Involve*.
- Researched the critical group of the cube graph under Professor Victor Reiner.

MIT PRIMES January 2012 - May 2014
Cambridge, MA

- Participated in a mathematics research program for high-school students at the Massachusetts Institute of Technology.
- Researched a combinatorial model for biological self-assembly with Jonathan Tidor under Jesse Geneson. Led to a prize at the Siemens competition.
- Researched optimizations for the Euclidean algorithm in quadratic number fields under Dr. Tanya Khovanova.
- Researched pattern avoidance and Davenport-Schinzel sequences with Jonathan Tidor under Jesse Geneson. Led to publication in *The Electronic Journal of Combinatorics*.

TEACHING EXPERIENCE

Course assistant, Math 55a September 2017 – Present

- Course assistant for Math 55a, an advanced undergraduate mathematics course for first-year students at Harvard.
- Graded problem sets, held office hours.
- Ran weekly sections covering supplementary/advanced material.

Course assistant, Math 25ab September 2016 – May 2017

- Course assistant for Math 25a and 25b, an advanced undergraduate mathematics course for first-year students at Harvard.
- Graded problem sets, held office hours.

Course assistant, Math 112 January 2016 – May 2016

- Course assistant for Math 112, an introductory real analysis course.
- Graded problem sets, held office hours.

PUBLISHED PAPERS

1. Ethan Alwaise, Shuli Chen, Alexander Clifton, Rebecca Patrias, Rohil Prasad, Madeline Shinners and Albert Zheng. *Coincidences among skew dual stable Grothendieck polynomials*, 2016, Involve 11(1): 143–167 (2018); arXiv:1609.06171.
2. J. T. Geneson, Rohil Prasad and Jonathan Tidor. *Bounding sequence extremal functions with formations*, 2013, Electr. J. Comb. 21(3): P3.24 (2014); arXiv:1308.3810.

AWARDS AND HONORS

RSI (Research Science Institute) Scholar — June 2013
Chosen as one of 70 scholars from over 3000 applicants worldwide.

SIEMENS Research Competition National Finalist — December 2012
Chosen as one of the top six team research projects in the nation.

USAJMO Honorable Mention — 2012
One of the top 24 contestants in the nation.

USAMO Qualifier — 2013
One of the top 500 contestants in the nation.

AIME Qualifier — 2010 - 2014

TALKS AND PRESENTATIONS

Contributed talks:

- "Conical Algebraic Geometry", Harvard Undergraduate Math Table, 2/7/17.
- "The Grothendieck Spectral Sequence", Harvard Undergraduate Topology Seminar, 10/3/17.
- "Introduction to Morse Theory", Harvard Undergraduate Math Table, 11/7/17.

Presentations:

- "On Binary Formations and Sequence Extremal Functions", 2014 Joint Mathematics Meetings Undergraduate Poster Session, 01/17/14.

EXPOSITORY WRITINGS

- "The Serre spectral sequence", Final paper for Math 231a (Algebraic Topology).
- "Spheres on spheres on spheres: The Hopf invariant one problem", Final paper for Math 231br (Advanced Algebraic Topology).
- "The Seiberg-Witten invariant of a homology $S^1 \times S^3$", undergraduate senior thesis, in preparation.
- Some other writing is available at `rohilprasad.wordpress.com`.

COURSEWORK

Mathematics

Undergraduate: Math 55ab (Honors Abstract Algebra, Honors Real and Complex Analysis), Math 123 (Algebra II: Rings and Fields), Math 99r (Category Theory), Math 91r (Reading Course: Intersection Theory), Math 114 (Analysis II: Measure and Integration).

Graduate: Math 231a (Algebraic Topology), Math 232a (Algebraic Geometry), Math 231br (Advanced Algebraic Topology), Math 230a (Differential Geometry), Math 230br (Advanced Differential Geometry), Math 233a (Theory of Schemes), Math 288 (Probability Theory and Stochastic Processes), Math 213a (Advanced Complex Analysis), Math 270 (Isometric Embedding and Geometric Analysis).

Computer Science

Undergraduate: CS 50 (Introduction to Computer Science I), CS 125 (Algorithms and Complexity), CS 181 (Machine Learning), CS 61 (Systems Programming and Machine Organization).

Graduate: CS 287 (Natural Language Processing), CS 224 (Advanced Algorithms).

Statistics
Graduate: Stat 211 (Inference).

INDUSTRY EXPERIENCE

Assistant Trader Intern, Susquehanna International Group June 2017 – August 2017
Philadelphia, PA

- Worked with quantitative researchers and traders to construct a novel equity trading strategy.
- Learned basic options theory and poker.
- Participated in mock trading simulations.

Software Engineering Intern, Wayfair June 2015 – August 2015
Boston, MA

- Wrote a natural language processing script to improve search precision and recall by finding important n-grams in Wayfair product data.
- Implemented a black box learning algorithm for improving numerical parameters in the search platform.

TECHNOLOGY SKILLS

Languages: LaTeX, Sage, Python, C++, R, Java.
Technologies: Numpy, Torch, Flask, NLTK, MySQL.